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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/643,027	08/18/2003	Jorg Witte	P/633-17	3217

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EXAMINER	
KERNS, KEVIN P	

ART UNIT	PAPER NUMBER
1725	

DATE MAILED: 06/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/643,027	WITTE ET AL.	
	Examiner	Art Unit	
	Kevin P. Kerns	1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 April 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-49* is/are pending in the application.

4a) Of the above claim(s) *44-49* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-43* is/are rejected.

7)☒ Claim(s) *2,6,9,16,17,28,33 and 34* is/are objected to.

8)☒ Claim(s) *1-49* are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 August 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *7/15/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicants' election without traverse of Group I (claims 1-43) in the reply filed on April 22, 2005 is acknowledged.

Oath/Declaration

2. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:
It was not executed in accordance with either 37 CFR 1.66 or 1.68.

In this instance, the signature and date of the 4th inventor (Bauer) is missing.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the perpendicular arrangement of the components to be welded (claim 43) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure

number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: "25.11", "25.12", "a", and "a1" (Figure 1b); "5.22" and "a16" (Figure 2a); "17.2", "25.21", "25.22", and "$a1_2$" (Figure 2b); "2.2", "5.22", "16.22", and "a16" (Figure 2c); "7.3" and "8.3" (Figure 3a); and "18.3" (Figure 3b). Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top

margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

5. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: "20" and "24" (see specification page 25, lines 4, 10, and 11). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

6. The drawings are objected to because Figures 4a and 4b are unclear, since this drawing sheet appears to be a facsimile transmission with a photocopied appearance (not clearly showing the grain structure of the metallographs). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to

avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

7. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: the text (equation?) in the last line of claim 27 (also rejected under 35 USC 112, 2nd paragraph) is absent from the specification; furthermore, the claim 43 limitation "perpendicular arrangement of the components" is absent from the specification (also absent from drawings – see above).

8. The disclosure is objected to because of the following informalities: on page 15, 8th line, it is believed that "N ^{3} 1" is in error. On page 20, 1st line, the comma should be deleted after "faces". On page 21, 18th and 19th lines, the "D" in both "Dn" and "Dl" should be replaced with "delta" symbols. On page 24, 26th line, replace "3.4" with "3.3" to be in agreement with the drawings. On page 25, 7th line, replace "2.3" with "3.3" to be in agreement with the drawings. Corrections and/or clarifications are required for these and other errors that occur throughout the specification.

Claim Objections

9. Claims 2, 6, 9, 16, 17, 28, 33, and 34 are objected to because of the following informalities: in claim 2, 3rd line, replace "have" with "having". In claim 6, 3rd line, replace "have" with "having". In claim 6, 6th line, add a comma after "welding". In claim 16, 4th line, replace "apply" with "applying". In claim 9, 3rd line, replace "loading" with "load" to obtain proper antecedent basis. In claim 16, 4th and 5th lines, delete "the" before "mutually" to obtain proper antecedent basis. In claim 17, 3rd and 4th lines, replace "PT" with "Pt". In claim 17, last line, it is believed that "Ph" should be changed to "Rh". In claim 28, 3rd line, replace "the" with "a" before "flowable" to obtain proper antecedent basis. In claim 33, last line, delete "the" before "contact" to obtain proper antecedent basis. In claim 34, 2nd line, replace "electrode" with "electrodes" after "rolling". Appropriate correction is required.

Claim Rejections - 35 USC § 112

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 1-43 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to claim 1, it is unclear what is encompassed by the phrase "there welding" in the heating step. It is believed that this phrase should be replaced by "then welding" to set forth subsequent process step(s).

With regard to claim 4, it is unclear what is meant by the phrase "temperature corresponding to energy input". It is not believed that these values would be nearly equivalent during the welding operation.

With regard to claim 9, it is unclear what is meant by the phrase "opposite sides at opposite sides". Does this phrase mean all four sides?

Claim 17 recites improper Markush language. See MPEP 2173.05(h).

Claim 21 recites the limitation "the overlapping regions". There is insufficient antecedent basis for this limitation in the claim. It is suggested to replace "regions" with "region" to establish proper antecedent basis.

Claims 21 and 25 recite the limitation "the entire beveled faces". There is insufficient antecedent basis for this limitation in the claims.

With regard to claim 27, it is unclear what is meant by the text (equation?) in the last line of the claim.

With regard to claim 31, it is unclear what is meant by the phrase "to bring them joints the flowable state". Should the unclear phrase "them joints the" be changed to "the joints into a"?

The term "brief action" in claim 32 is a relative term which renders the claim indefinite. The term "brief action" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. There is no specific range of times in the specification that corresponds to the unclear "brief action".

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

14. Claims 1, 10, 18, 19, 27, 31, 39, and 42 insofar as definite (in view of the 35 USC 112, 2nd paragraph rejections of the claims listed above) are rejected under 35 U.S.C. 103(a) as being unpatentable over Holko et al. (US 3,758,741).

Holko et al. disclose a method for enhanced diffusion bonding to produce permanent integral connections of oxide-dispersed metallic materials by welding, in which the method includes the steps of supplying two materials/components (roughened surface sheets of one or more nickel-based alloys having known melting temperature(s)) to be joined by overlapping, to define an overlapping region and a joining region; heating the materials/components at the joining region to a temperature below the melting point of the materials, and welding the materials while applying a first pressure to form at least a partial diffusion bond (from joining region being in at least partially a flowable state); and subsequently heating the partial diffusion bond to a temperature below the melting point of the materials, and then mechanically recompacting (while applying a second pressure) to form a final diffusion bond between the materials (abstract; column 1, lines 11-15 and 55-67; column 2, lines 3-13 and 19-68; column 3, lines 1-23 and 32-52; column 4, lines 18-40 and 59-65; Tables I-IV; and claims 1-10). Although not specifically disclosed by Holko et al., one of ordinary skill in the art would have recognized that the formation of at least a partial diffusion bond would have occurred in the process prior to the recompacting step (application of a second pressure), as welding of the materials while applying a first pressure would

initiate the formation of recrystallization, and thus begin to produce a diffusion bond prior to the recompacting step.

15. Claims 2, 6-9, 11, 20-26, 37, and 41 insofar as definite (in view of the 35 USC 112, 2nd paragraph rejections of the claims listed above) are rejected under 35 U.S.C. 103(a) as being unpatentable over Holko et al. (US 3,758,741) in view of Okabe et al. (US 6,037,559).

Holko et al. disclose and/or suggest the elements of claim 1 above. Holko et al. do not specifically disclose that the materials to be welded have different melting temperatures and/or thicknesses (claims 2, 6, 37, and 41), applying an impact load by hammering (claims 8 and 9), providing a welding filler (claim 11), and providing a beveled region within the joining region (claims 20-26),

However, Okabe et al. disclose a process for lap joining two kinds of metallic members having different melting points and thicknesses, in which the process includes providing two metallic members (e.g. iron-based plate 3 lapped onto an aluminum-based plate 2) that sandwich an adhesive 22 (filler material) to create lapped areas 4; pressing the two metallic members (2,3) between opposing electrodes (6,7) along a beveled surface within the joining region of the lapped metallic members (2,3); providing a resistance-welding current to weld the members (2,3); and hammering (recompacting) the bonded product 1 with a hammer, such that these additional steps and/or features are advantageous for obtaining a final composite product having improved diffusion bonding between dissimilar metallic materials without gaps in the beveled lapped areas,

thus providing improved workability to the product (abstract; column 1, lines 7-13; column 2, lines 45-67; column 3, lines 1-57; column 5, lines 23-67; column 6, lines 1-67; column 8, lines 1-20; column 9, lines 52-67; column 10, lines 1-27; column 11, lines 54-67; column 12, lines 1-59; and Figures 1-32).

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to modify the method for enhanced diffusion bonding to produce permanent integral connections of oxide-dispersed metallic materials by welding, as disclosed/suggested by Holko et al., by lap joining two kinds of metallic members having different melting points and/or thicknesses, as taught by Okabe et al., in order to obtain a final composite product having improved diffusion bonding between dissimilar metallic materials without gaps in the beveled lapped areas, thus providing improved workability to the product (Okabe et al.; column 2, lines 45-51; column 6, lines 55-67; column 10, lines 23-27; and column 12, lines 53-59).

16. Claims 3-5, 11, 16, 28-30, 32-36, and 43 insofar as definite (in view of the 35 USC 112, 2nd paragraph rejections of the claims listed above) are rejected under 35 U.S.C. 103(a) as being unpatentable over Holko et al. (US 3,758,741) in view of Metcalfe et al. (US 3,644,698).

Holko et al. disclose and/or suggest the elements of claim 1 above. Holko et al. do not specifically disclose providing recompaction downstream/after the welding step (claims 3-5), providing a welding filler in the form of a metal coating (claims 11 and 16), providing an advancing direction and obtaining neighboring welding points via seam

welding (claims 28-30), resistance welding via roller seam welding with roller electrodes (claims 32-36), and providing a perpendicular arrangement of the components to be welded (claim 43).

However, Metcalfe et al. disclose metallurgical bonding and forming processes, in which the processes include providing two metallic members (40,42) or (126,127) that have a filler material in the form of a surface coating on one or both of the metallic members to improve bonding; pressing the two metallic members (40,42) or (126,127) between either one roller electrode 44 or opposing roller electrodes (124,125) along overlapping surfaces of the joining region of the metallic members (40,42) or (126,127); and providing a resistance-welding current to weld the members via roller seam welding, with either a continuous bond or plural neighboring bonds being formed in the process to obtain pressing of the diffusion bond at and just after the resistance welding roller electrodes, with production of products resulting in perpendicularly arranged members (e.g. I-beams), such that these additional steps and/or features are advantageous for obtaining a final composite product having improved diffusion bonding in the form of continuous or plural bonds over the lapped areas of the metallic members, thus providing a final composite product with improved strength (abstract; column 1, lines 3-9; column 2, lines 38-75; column 3, lines 1-75; column 4, lines 1-7 and 39-75; column 5, lines 1-75; column 6, lines 1-34; column 7, lines 71-75; column 8, line 1 through column 13, line 30; column 18, lines 23-45; and Figures 1-40).

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to modify the method for enhanced diffusion bonding to

produce permanent integral connections of oxide-dispersed metallic materials by welding, as disclosed/suggested by Holko et al., by using a portion of the metallurgical bonding and forming processes listed above, as taught by Metcalfe et al., in order to obtain a final composite product having improved diffusion bonding in the form of continuous or plural bonds over the lapped areas of the metallic members, thus providing a final composite product with improved strength (Metcalfe et al.; column 2, lines 44-52; column 3, lines 15-19 and 46-50; column 4, lines 39-46 and 60-75; column 5, lines 1-5 and 44-75; column 6, lines 1-34; column 8, lines 30-44; column 9, lines 53-71; and column 18, lines 23-45).

17. Claims 11 and 43 insofar as definite (in view of the 35 USC 112, 2nd paragraph rejections of the claims listed above) are rejected under 35 U.S.C. 103(a) as being unpatentable over Holko et al. (US 3,758,741) in view of Pal (US 4,689,465).

Holko et al. disclose and/or suggest the elements of claim 1 above. Holko et al. do not specifically disclose providing a welding filler (claim 11) and a perpendicular arrangement of the components to be welded (claim 43).

However, Pal discloses a process for producing a coherent bond between thin metal surfaces via welding, in which the process includes providing two sheet metallic members (1,1) that have a filler material (deformable auxiliary material 2) between the metallic members to improve bonding; pressing the two metallic members via force F; and welding the members together to obtain a diffusion bond, with production of products resulting in perpendicularly arranged members (e.g. see Figures 9-12), such

that these additional steps and/or features are advantageous for obtaining a final composite product having improved diffusion bonding in the form of continuous or plural bonds over the lapped areas of the metallic members, thus providing a final composite product with improved strength (abstract; column 1, lines 7-20; column 2, lines 51-68; column 3, lines 1-68; column 4, lines 1-42; column 5, lines 18-68; column 6, lines 1-68; column 7, lines 1-42; column 8, lines 1-5; and Figures 1-12).

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to modify the method for enhanced diffusion bonding to produce permanent integral connections of oxide-dispersed metallic materials by welding, as disclosed/suggested by Holko et al., by using a portion of the process of welding two sheet metallic members via a filler material, as taught by Pal, in order to obtain a final composite product with improved strength (Pal; abstract; column 2, lines 51-62; and column 4, lines 38-42).

Allowable Subject Matter

18. Claims 12-15, 17, 38, and 40 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

19. The following is a statement of reasons for the indication of allowable subject matter: the prior art fails to teach or suggest a method that includes all the limitations of independent claim 1, while further including the following limitations: 1) a welding filler

that comprises at least one noble metal foil disposed between the materials or components to be connected in the joining region (dependent claim 12); 2) a welding filler that is selected from the group consisting of one or more of Pt and its alloys (dependent claim 17); 3) the materials or components to be welded consist of oxide-dispersed material based on Pt-ODS, Pt-Au5-ODS, or PtRh10-ODS (dependent claim 38); and 4) the materials or components consist of materials based on Pt, Pt-Au, Pt-Rh, or Pt-Ir (dependent claim 40).

Conclusion

20. The prior art made of record and not relied upon is considered pertinent to applicants' disclosure. The Jost reference is also cited in PTO-892.

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Kevin P. Kerns whose telephone number is (571) 272-1178. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin P. Kerns Kevin Kerns 6/12/05
Primary Examiner
Art Unit 1725

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June 12, 2005